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## (54) THERMAL BANDAGE

THERMALBANDAGE

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US-A- 3 871 376                   US-A- 3 885 403  
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**Description****BACKGROUND TO THE INVENTION**

This invention relates to bandages and more particularly to bandages which dress a wound while at the same time providing heat or cold to a wound area.

Thermal therapies have been used for many years to treat ailments such as toothaches, headaches, arthritis, bursitis, burns and bleeding. Thermal therapies have included warm or cold water applied directly to a wound, the use of a hot water bottle and more recently to the use of packages of heat retaining gel such as that described in United States Patent No. 3,885,403 to Spencer, issued May 27, 1975.

Various methods of securing heat retaining packages to a body are described in United States Patents such as Patent No. 4,676,247 to Van Cleve issued June 30, 1987, Patent No. 4,055,188 to Peiton issued October 25, 1977, Patent No. 4,688,572 to Hubbard et al. issued August 25, 1987 and Patent No. 4,908,248 to Nakashima et al. issued March 13, 1990. While each of the devices described in the above patents effectively holds a heat retaining package to a body part, it would appear that none is capable of being applied directly to an open wound. Each device requires that an open wound first be dressed with a conventional dressing before the thermal wrap can be applied. This can be time consuming and unnecessarily complicated as two different types of bandages must be tended to; the first being the dressing and the second being the thermal bandage.

United States patent No. 3,871,376 to Kozak discloses a bandage for thermally treating a wounded bodily area, the bandage comprising holding means for holding a thermal medium such that heat is transferred from the thermal medium to the wounded bodily area, the bandage is for simultaneously dressing and thermally treating the wounded bodily area and the bandage comprises : (a) a fluid absorbing member having a wound contacting surface for absorbing bodily fluids produced by an open wound; (b) in which the means is adjacent and connected to the fluid absorbent member for holding the thermal medium against the fluid absorbent member such that heat is transferred between the thermal medium and the open wound by thermal conduction through the fluid absorbent member. However, such an arrangement means that the thermal medium cannot be replaced without removing the wound contacting surface from the wound.

The present invention eliminates the use of two different bandages as it effectively combines the dressing and the thermal bandage into one. In addition, the present invention provides a multi-unit bandage which is easily dispensed, in a manner which speeds up the process of dressing a wound and applying heat or cold.

**SUMMARY OF THE INVENTION**

In accordance with one aspect of the invention, there is provided a bandage for thermally treating a wounded bodily area, the bandage comprising holding means for holding a thermal medium such that heat is transferred from the thermal medium to the wounded bodily area, the bandage is for simultaneously dressing and thermally treating the wounded bodily area and the bandage comprises:

- 5 a) a fluid absorbing member having a wound contacting surface for absorbing bodily fluids produced by an open wound;
- 10 b) in which the means is adjacent and connected to the fluid absorbent member for holding the thermal medium against the fluid absorbent member such that heat is transferred between the thermal medium and the open wound by thermal conduction through the fluid absorbent member; characterised by

- 15 c) a pocket having an opening for receiving the thermal medium.
- 20
- 25

Preferred features of the present invention are set out in the Claims 2 onwards appended hereto.

**BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 is an oblique front exploded view of an apparatus according to a first embodiment of the invention;

35 Figure 2 is an oblique view of an apparatus according to a second embodiment of the invention;

40 Figure 3 is an oblique view of an apparatus according to a third embodiment of the invention;

45 Figure 4 is an oblique view of an apparatus according to the first embodiment employing a water circulating apparatus according to a fourth embodiment of the invention.

50 Figure 5 is an oblique view of an apparatus according to a fifth embodiment of the invention; and

55 Figure 6 is an oblique view of an apparatus according to a sixth embodiment of the invention.

**DETAILED DESCRIPTION**

Referring to Figure 1, an apparatus according to a first embodiment of the invention is shown generally at 10. The apparatus includes first and second flexible

members 12 and 14 each formed of a composite material such as a cotton/fibre mix commonly known as Pellon (Trademark). Other materials will also be acceptable provided they have sufficient strength and pliability to conform to the human body and remain securely attached thereto in accordance with the following.

The first flexible member has first, second, third and fourth edges 16, 18, 20 and 22 while the second member has similar edges 24, 26, 28 and 30. Respective first, second, third and fourth edges of each flexible member are joined together using double sided laminating glue strips 31.

The glue strips 31 are applied to only an approximately 1/8 inch strip along the outer perimeters of the first and second flexible members 12 and 14 and are sandwiched between the edges of the first and second flexible members. Heat is applied to activate the glue to bond the respective edges together. Just the outer perimeter portions of the first and second flexible members are bonded together forming first, second, third and fourth bonded edges. A space 33 is thus formed between the first and second flexible members, in the area between the bonded edges.

To provide access to the space 33, the second flexible member 14 is provided with a transversely extending slit 32 which extends between the first and second bonded edges. A pocket 34 is thus formed: the pocket being bounded by the bonded edge portions and the slit 32, the slit acting as an opening to the pocket. The pocket is therefore approximately the same size as the first and second flexible sheets 12 and 14.

In the embodiment shown, the pocket is of sufficient size to admit a container of a thermal medium such as a conventional hot/cold pack 36 as described in United States Patent No. 3,885,403 to Spencer, issued May 27, 1975. In the embodiment shown, the pocket has a flap 35 formed by one side of the second flexible member adjacent the slit, which acts as closure means for preventing the hot/cold pack 36 from falling out of the pocket.

The second flexible member 14 further includes first and second flexible end portions 38 and 40 having respective first and second adhesive portions 42 and 44 thereon. The first and second adhesive portions face in the same direction when the bandage is laid flat and act as securing means for securing the bandage to body of a person.

Disposed between the first and second end portions 38 and 40 and disposed immediately adjacent the pocket 34 is a fluid absorbent member 46 having a wound facing side 48. The wound facing side has a wound contacting surface 52 thereon, the wound contacting surface facing in the same direction as the first and second adhesive portions 42 and 44. The fluid absorbent member 46 includes conventional cotton fibre batting material sandwiched between first and second sheets of cotton fibre or gauze material and is operable to absorb bodily fluids produced by an open wound.

5 The fluid absorbent member 46 is secured to a moisture barrier 54 comprised of a fluid impermeable plastic sheet. The moisture barrier is secured to the second flexible member 14 and thereby serves to secure the fluid absorbent member 46 to the second flexible member. The moisture barrier is used to prevent fluids from passing through the fluid absorbent member to the pocket and vice versa.

10 The second flexible member 14, moisture barrier 54 and fluid absorbent member 46 each have sufficient thermal conductivity to enable the transfer of heat between the hot/cold pack 36 and the wound contacting surface 52.

#### 15 Operation

It is envisaged that the above-described bandage 10 would be shipped in a sterile plastic wrap package (not shown). At the site of treating a wound, the hot/cold pack 36 is preheated or pre-cooled to any desired temperature, using conventional methods. Throughout this discussion it is to be understood that the terms hot and cold are referenced relative to normal human body temperature.

20 25 To use the bandage, one simply removes the plastic packaging (not shown) and inserts the preheated or pre-cooled hot/cold pack 36 into the pocket 34. The adhesive portions 42 and 44 are then exposed by peeling off conventional paper backings 56. The bandage is then handled by third and fourth bonded edges (20, 28 and 22, 30) to place the wound contacting surface 52 against the wound. The first and second adhesive portions 42 and 44 are then pressed against the skin adjacent the wound to secure the bandage in place.

30 35 When in place, the bandage allows the fluid absorbent member 46 to absorb any fluids produced by the wound and such fluids are confined to the fluid absorbent member by the moisture barrier 54. At the same time, heat or cold is applied to the wound due to the hot/cold pack 36 being located immediately adjacent the fluid absorbent member.

40 45 The bandage permits the wound to be dressed while at the same time applying heat or cold, all in a single step. Therefore, a wounded patient can be tended to much quicker than with conventional methods which require the use of a separate wound dressing and hot/cold compress wrapping.

#### Alternatives

50 Referring to Figure 2, an apparatus according to a second embodiment of the invention is shown generally at 60. The apparatus includes first and second flexible members 12 and 14, similar to the flexible members described with respect to the first embodiment. The apparatus described in Figure 2 however includes first and second spaced apart slits 62 and 64 forming first and second pockets 66 and 68 respectively. To the outsides of respective pockets are secured respective

moisture barrier sheets 70 and respective fluid absorbent members 72.

The apparatus has first and second end portions 74 and 76 and a mid portion 78. First and second adhesive portions 80 and 82 are secured to the first and second end portions respectively and a third adhesive portion 83 is secured to the mid portion 78.

The apparatus further has a perforation line 84 having a plurality of perforations 86 which extend through the first and second flexible members 12 and 14 and through the third adhesive portion 83. Thus a plurality of frangible portions 88 are formed between the perforations 86. The perforation line divides the apparatus into first and second separable units 90 and 92, separable at the perforation line 84.

In this embodiment, the third adhesive portion 83 is similar in shape to two of, say, the first adhesive portions 80 placed side by side and thus when the first and second units are separated, each unit has respective first and second adhesive portions which are the same size and thus each has the same holding capacity.

It has been found that if the overall length of the above apparatus is chosen such that the apparatus just wraps around a person's head, a convenient head bandage is formed. If the apparatus is provided in such lengths, units may conveniently be separated as required, to treat areas other than the head and further apparatuses can be left unseparated to treat the head. Consequently this configuration provides a bandage which is adaptable to the various requirements often presented for a bandage.

Referring to Figure 3, a third embodiment of the invention is shown generally at 100. In this embodiment, the double unit apparatus illustrated in Figure 2 is repeated along a very long length of the first and second flexible sheets 12 and 14 such that the apparatus exists in the form of a roll 102 of double unit bandages 60. This configuration permits easy dispensing of the double unit bandages as the roll can be placed in a dispenser or may be held similar to a paper towel holder and the double unit bandages can merely be separated from the roll as desired. This has a particular advantage in an emergency setting where a patient can be treated quickly by simply tearing a double unit bandage from the roll, wrapping it around the patient and inserting a pre-cooled or preheated gel pack or gel packs into the pockets in the double unit. This of course, is quicker than the conventional method of applying a dressing to the wound, then wrapping a gel pack holder around the dressing and then inserting a gel pack into the pocket.

#### Alternative Thermal Media

Referring to Figure 4, an alternative apparatus for holding a thermal medium is shown generally at 120. The apparatus includes a water tight bag 122 having an inlet nipple 124 and an outlet nipple 126. To the inlet nipple is connected a first length of surgical tubing 128 leading to an outlet 130 of a water reservoir 132. To the

outlet nipple 126 is connected a second length of surgical tubing 134 which is further connected to an inlet 135 of a waterpump 136. The waterpump also has an outlet 138 to which is connected a third length of surgical tubing 140 which is further connected to an inlet 142 of the reservoir 132.

Inside the reservoir 132, there is located a water heater 144 controlled by a thermostat 146. The thermostat allows a pre-determined water temperature to be selected and controls electric power to the water heater to heat water in the reservoir to the pre-determined water temperature and maintain the water at that temperature.

Preferably, the water reservoir is located higher than the bag 122 to produce a static head tending to create sufficient water pressure to create a flow of water from the reservoir, through the first surgical tubing 128 and into the bag. The water pump 136 further assists the static head in creating the flow of water by pumping water from the bag 122 back into the reservoir 132. In effect therefore water heated to the pre-determined temperature flows into the bag 122 where the heat in the water is transferred to the patient's wound through the wound contacting surface 52 of the fluid absorbent member 46. Thus the water in the bag is cooled due to this transfer of heat. The cooled water is conducted by the second surgical tubing 134 to the pump 136 which pumps the cooled water through the third surgical tubing 140, back into the reservoir 132. The cooled water entering the reservoir is reheated through contact with the water already in the reservoir and by the heater 144.

Alternatively, for applications where coldness on the wound is desirable the heater 144 may be replaced with a cooling coil of a refrigeration system (not shown) in which case the water in the reservoir would be cooled to a predetermined temperature and cooled water would be circulated into the bag 122 such that heat is drawn from the patient's wound through the fluid absorbent member 46 and the moisture barrier. The cooled water would then be conducted by the second surgical tubing 134 to the pump 136 to pump the heated water through the third surgical tubing 140, back into the reservoir 132. The heated water entering the reservoir would then be re-cooled through contact with the water already in the reservoir and by the cooling coil.

Alternatively, the reservoir may be fitted with both a heater and a cooling coil and provisions may be provided for selecting operation of either the heater or the cooling coil.

In another embodiment (not shown) the first surgical tubing may simply be connected to a conventional water tap and the associated hot and cold water valves may be regulated by hand until water at a pre-determined temperature is dispensed from the tap. The second surgical tubing may be routed from the bag to a conventional sink to permit water to flow out of the bag.

#### Alternative Bandage Configuration

Referring to Figure 5, an alternative bandage apparatus is shown generally at 200. In this embodiment, the apparatus is formed from a conventional one-inch thick absorbent cotton pad 202.

The pad 202 has first and second opposite face sides 204 and 206 and first and second opposite end portions 208 and 210. The first face side 204 has a wound contacting surface 212 which extends from the first end portion 208 to the second end portion 210. The first and second opposite end portions 208 and 210 act to absorb fluids produced by an open wound in contact with the wound contacting surface. The second face side 206 has a square recess 214 cut therein for receiving a hot or cold medium (not shown). The recess acts as a pocket for holding a thermal medium.

The recess 214 has first, second, third, and fourth side walls 216, 218, 220, 222 and a bottom portion 224. The bottom portion 224 is separated from the wound contacting surface 212 by only a relatively small spacing portion 226 of fluid absorbent padding through which heat is transferred to or from the wound to or from a hot or cold medium in the recess 214.

In this embodiment the temperature medium may be a gel pack, a hot water bottle, the water bag described with reference to Figure 4, a zip-lock bag containing water or the like. Any of these temperature media containers may be secured in the recess 214 using conventional adhesive tape placed over the recess after the container has been placed in the recess.

Alternatively, referring to Figure 6, a pre-formed shell insert 228 formed of a plastic material and having a shape similar to the recess 214 is placed into the recess. Preferably, the shell insert 228 has relatively thin walls to reduce any heat insulating properties of the plastic. Also preferably, the shell insert is water tight and therefore heated water or water with ice may be placed directly into the shell insert and a fluid impermeable tape (not shown) may be placed across the shell such that the water is prevented from escaping from the shell. The shell thus acts as a moisture barrier in this embodiment.

Alternatively, the temperature medium may be a gel pack, a hot water bottle, the water bag described with reference to Figure 4, a zip-lock bag containing water or the like.

This embodiment also lends itself to the use of a rigid thermal media container such as that designated 230. This container includes six rigid sides 232 which completely enclose an inside space for holding water or other thermal medium. To one of the faces 232 are secured first and second 'T' shaped conduits 234 and 236 respectively. The first conduit has respective first and second opposite openings 238 and 240 and the second conduit also has first and second opposite openings 242 and 244. Each opening is in communication with the inside space such that water can be forced

into or extracted from the inside space via the openings 238 - 244.

The conduits 234 and 236 are round in shape and are therefore operable to connect to suitably sized first and second surgical tubing 248 and 250 which may be connected to the reservoir described in Figure 4 for circulating water through the container 230.

If only one bandage 204 is used, then only one container 230 need be used. In this case the second openings 240 and 244 would be closed by an appropriate cap (not shown). If a plurality of bandages are used then a plurality of containers 230 may be used, wherein one container is associated with each bandage unit. In such an application, additional conduits of surgical tubing may be connected between the second openings 240 and 244 of a first container and first openings (238 and 242) of a second container. This effectively connects the containers in parallel such that each container receives water from the reservoir and thus each container contains water at the same temperature.

#### Material selection

The first and second flexible sheets described with respect to the first, second and third embodiments may be formed from a variety of materials selected to suit the particular application. In particular, the first and second flexible members may be formed from a cotton yarn/Spandex (trademark) combination or from rubber thread. White crepe bandage devices may be manufactured using a polyester/rayon blend. Or, non woven products may be used such as spunbonded or melt-blown polypropylene. A soft cloth-like feel may be provided in the bandage by employing Rayon (trademark), Spunlace (trademark) or Sontara (trademark). These materials tend to be more water proof and tend to "breathe" better than other materials.

A suitable material for the absorbent member is highly absorbent cotton as commonly used in tracheotomy and laparotomy sponges. Alternatively a plurality of layers may be used wherein such layers may include a nonwoven saffron microporous surface layer for instantly absorbing fluid and preventing them from seeping back to the wound. Behind the surface layer may be a layer of absorbent paper for liquid dispersal and behind this layer may be an embossed pad which contains a superabsorbent polymer to quickly draw and absorb liquid. A second layer of absorbent paper may be employed behind the superabsorbent polymer and a PE film leak proof wetness barrier may be employed behind the second layer of absorbent paper. This wetness barrier may take the place of the moisture barrier described with reference to the first embodiment.

While specific embodiments of the invention have been described and illustrated, such embodiments should be considered illustrative of the invention and not as limiting the invention as construed in accordance with the accompanying claims.

**Claims**

1. A bandage (10, 200) for thermally treating a wounded bodily area, the bandage (10, 200) comprising holding means for holding a thermal medium (36) such that heat is transferred from the thermal medium (36) to the wounded bodily area, the bandage (10, 200) is for simultaneously dressing and thermally treating the wounded bodily area and the bandage (10, 200) comprises:

- a) a fluid absorbing member (46, 208, 210) having a wound contacting surface (52, 212) for absorbing bodily fluids produced by an open wound;
- b) in which the means is adjacent and connected to the fluid absorbent member (46, 208, 210) for holding the thermal medium (36) against the fluid absorbent member (46, 208, 210) such that heat is transferred between the thermal medium (36) and the open wound by thermal conduction through the fluid absorbent member (46, 208, 210); characterised by
- c) a pocket (34, 214) having an opening for receiving the thermal medium (36).

2. A bandage according to claim 1 characterised in that the pocket (34) has a first side formed by said fluid absorbent member (46) and a second side formed by a flexible sheet (12) secured to said fluid absorbent member.

3. A bandage according to claims 1 or 2, in which the fluid absorbent member (46) includes a moisture barrier (54) for preventing fluids from passing from the wound contacting surface to the thermal medium (36).

4. A bandage according to claims 1, 2 or 3, characterised in that securing means are provided comprising first and second flexible end portions which have first and second adhesive portions (42, 44) respectively, the first and second adhesive portions (42, 44) facing in the same direction as the fluid absorbent member (46) such that the adhesive portions (42, 44) adhere to areas adjacent to and on opposite sides of the wound.

5. A bandage according to any one of claims 2, 3, or 4 further including closure means for closing the pocket (34) to prevent the container from falling out of the pocket (34).

6. A bandage according to claim 1, characterised in that the pocket (214) is integral with the fluid absorbent member (208, 210) and in thermal contact with the wound contacting surface (212), the

5 pocket (214) having an opening for receiving a container containing a thermal medium, the pocket (214) and fluid absorbent member (208, 210) having sufficient thermal conductivity to enable the transfer of heat between the thermal fluid and an open wound.

10 7. A bandage as claimed in any one of the preceding claims wherein the container has an inlet (124) and an outlet (126), the inlet (124) for permitting fluid to enter the container and the outlet (126) for permitting said fluid to leave the container.

15 8. A bandage as claimed in claim 7 wherein the apparatus also includes circulating means (136) for circulating said thermal fluid through said container.

**Patentansprüche**

20 1. Bandage (10, 200) zur thermischen Behandlung eines Wundbereichs, wobei zu der Bandage (10, 200) Halteelemente zum Halten eines Wärmeträgers (36) zu dem Zweck gehören, daß Wärme vom Wärmeträger (36) auf den Wundbereich übertragen wird, und die Bandage (10, 200) zur gleichzeitigen Wundversorgung und Wärmebehandlung des Wundbereichs bestimmt ist und folgendes umfaßt:

25 a) eine Auflage aus saugfähigem Material (46, 208, 210) mit einer Wundkontaktefläche (52, 212) zum Aufsaugen von Wundabsonderungen, die an einer offenen Wunde austreten;

30 b) bei der die Haltelemente zum Andrücken des Wärmeträgers (36) an die Auflage aus saugfähigem Material (46, 208, 210) angrenzend an die Auflage aus saugfähigem Material (46, 208, 210) angeordnet und mit ihm verbunden sind, so daß durch Wärmeleitung durch die Auflage aus saugfähigem Material (46, 208, 210) Wärme zwischen dem Wärmeträger (36) und der offenen Wunde übertragen wird, gekennzeichnet durch

35 c) eine Ausnehmung (34, 214) mit einer Öffnung für die Aufnahme des Wärmeträgers (36).

40 2. Bandage nach Anspruch 1, dadurch gekennzeichnet, daß die Ausnehmung (34) eine durch die Auflage aus saugfähigem Material (46) gebildete erste Seite und eine zweite Seite aufweist, die durch die an der Auflage aus saugfähigem Material befestigte Folie (12) gebildet wird.

45 3. Bandage nach Anspruch 1 oder 2, bei der zur Auflage aus saugfähigem Material (46) eine feuchtigkeitsabweisende Schicht (54) gehört, durch die verhindert wird, daß Wundabsonderungen von der Wundkontaktefläche zum Wärmeträger (36) durch-

dringen.

4. Bandage nach den Ansprüchen 1, 2 oder 3, dadurch gekennzeichnet, daß Befestigungselemente vorgesehen sind, zu denen der erste und zweite elastische Endabschnitt mit einem ersten und zweiten Klebeabschnitt (42, 44) gehören, wobei der erste und zweite Klebeabschnitt (42, 44) in die gleiche Richtung wie die Auflage aus saugfähigem Material (46) ausgerichtet sind, so daß die Klebeabschnitte (42, 44) unmittelbar in der Nähe und an einander gegenüberliegenden Seiten der Wunde anhaften. 5
5. Bandage nach einem der Ansprüche 2, 3 oder 4, zu der des weiteren Schließelemente zum Schließen der Ausnehmung (34) gehören, die den Behälter vor dem Herausfallen aus der Ausnehmung (34) schützen. 10
6. Bandage nach Anspruch 1, dadurch gekennzeichnet, daß die Ausnehmung (214) mit der Auflage aus saugfähigem Material (208, 210) integriert und mit der Wundkontaktefläche (212) wärmeleitend verbunden ist, wobei die Ausnehmung (214) mit einer Öffnung zur Aufnahme eines einen Wärmeträger enthaltenden Behälters versehen ist und die Ausnehmung (214) und die Auflage aus saugfähigem Material (208, 210) über eine ausreichende Wärmeleitfähigkeit zur Übertragung von Wärme zwischen der Wärmeübertragungsflüssigkeit und einer offenen Wunde verfügen. 15
7. Bandage nach einem der vorstehenden Ansprüche, bei der der Behälter einen Zuführungsanschluß (124) und einen Ableitungsanschluß (126) aufweist, wobei der Zuführungsanschluß (124) dazu dient, Flüssigkeit in den Behälter gelangen zu lassen, und der Ableitungsanschluß (126) dazu bestimmt ist, die Flüssigkeit aus dem Behälter nach außen abzuleiten. 20
8. Bandage nach Anspruch 7, bei der zu dem System auch Umwälzmittel (136) zum Umfordern der Wärmeübertragungsflüssigkeit über den Behälter gehören. 25

a) un organe d'absorption de fluide (46,208,210) comportant une surface de contact avec la blessure (52,212) pour absorber les fluides corporels produits par la blessure ouverte ;

b) dans lequel les moyens sont adjacents et reliés à l'organe (46,208,210) d'absorption de fluide pour retenir le milieu thermique (36) contre l'organe (46,208,210) d'absorption de fluide de manière que de la chaleur soit transférée entre le milieu thermique (36) et la blessure ouverte par conduction thermique à travers l'organe (46,208,210) d'absorption de fluide ; caractérisé par une poche (34,214) comportant une ouverture pour recevoir le milieu thermique (36).

2. Pansement selon la revendication 1, caractérisé en ce la poche (34) comporte un premier côté formé par l'organe (46) d'absorption de fluide et un second côté formé par une feuille flexible (12) fixée à l'organe d'absorption de fluide. 30
3. Pansement selon la revendication 1 ou 2, dans lequel l'organe (46) d'absorption de fluide comporte une barrière à l'humidité (54) pour empêcher les fluides de passer depuis la surface de contact avec la blessure vers le milieu thermique (36). 35
4. Pansement selon la revendication 1,2 ou 3, caractérisé en ce que des moyens de fixation sont prévus comprenant des première et seconde parties d'extrémité flexibles qui comportent des première et seconde parties adhésives (42,44) respectivement, les première et seconde parties adhésives (42,44) faisant face dans la même direction que l'organe (46) d'absorption de fluide de manière que les parties adhésives (42,44) adhèrent sur des zones adjacentes à la blessure et sur des côtés opposés de cette blessure. 40
5. Pansement selon l'une quelconque des revendications 2, 3 ou 4, comprenant de plus des moyens de fermeture pour fermer la poche (34) pour empêcher le conteneur de tomber à l'extérieur de la poche (34). 45

#### Revendications

1. Pansement (10,200) pour traiter thermiquement une zone corporelle blessée , le pansement (10,200) comprenant des moyens de retenue pour retenir un milieu thermique (36) de manière que de la chaleur soit transférée à partir de ce milieu thermique (36) vers la zone corporelle blessée, le pansement (10,200) étant destiné simultanément à panser et traiter thermiquement la zone corporelle blessée et le pansement (10,200) comprenant : 50
6. Pansement selon la revendication 1, caractérisé en ce que la poche (214) est venue de matière avec l'organe (208,210) d'absorption du fluide et est en contact thermique avec la surface (212) de contact avec la blessure, la poche (214) comportant une ouverture pour recevoir un conteneur contenant le milieu thermique, la poche (214) et l'organe (208,210) d'absorption de fluide comportant une conductivité thermique suffisante pour permettre le transfert de chaleur entre le fluide thermique et la blessure ouverte. 55

7. Pansement selon l'une quelconque des revendications précédentes, dans lequel le conteneur comporte une entrée (124) et une sortie (126), l'entrée (124) pour permettre à du fluide d'entrer dans le conteneur et la sortie (126) pour permettre à ce fluide de quitter le conteneur. 5

8. Pansement selon la revendication 7, dans lequel l'appareil comporte également des moyens de circulation (136) pour faire circuler le fluide thermique 10 à travers le conteneur.

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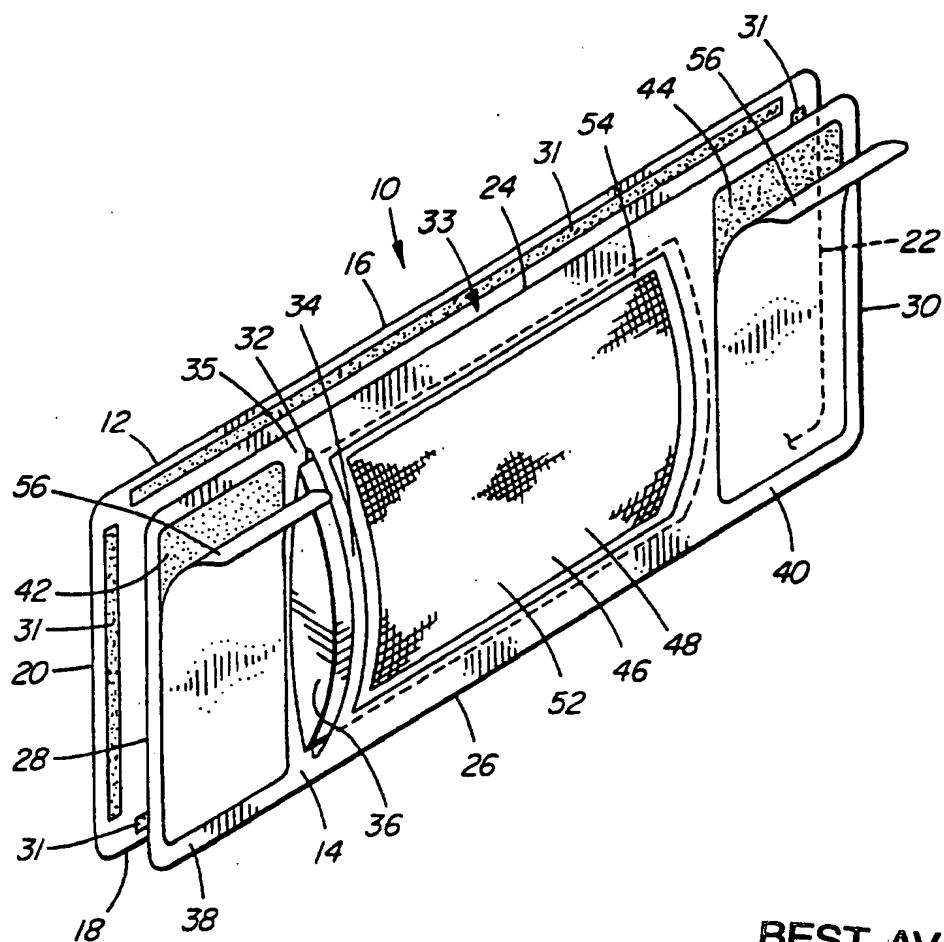
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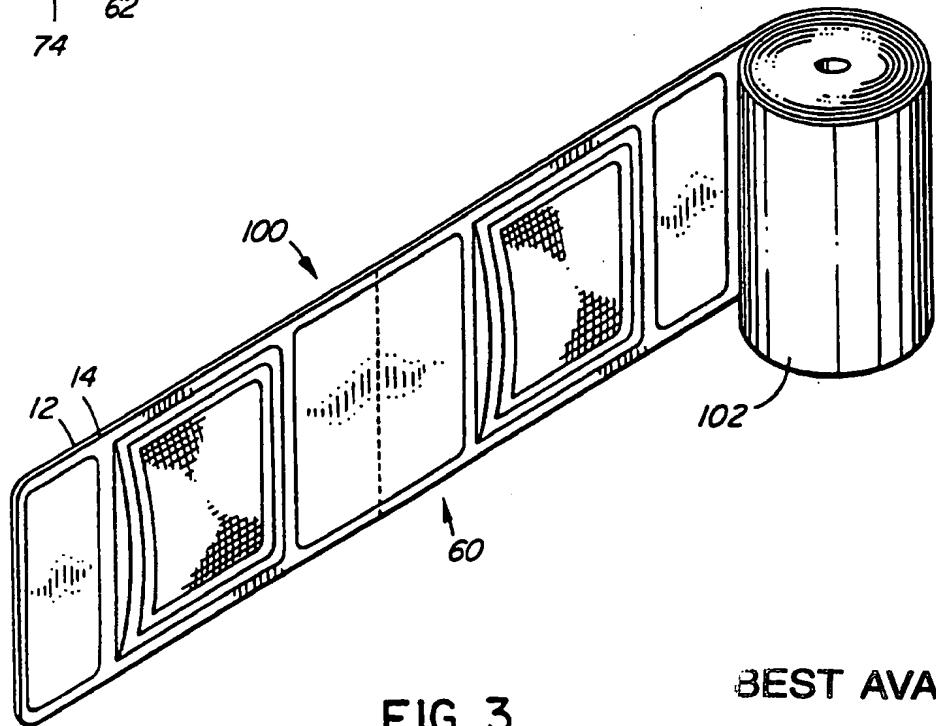
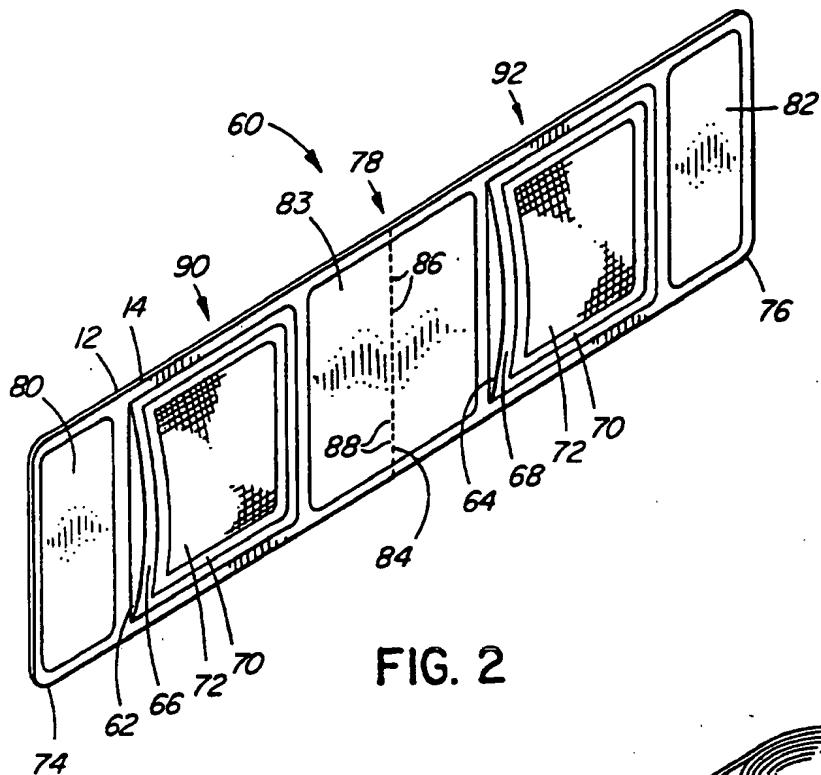
55

8

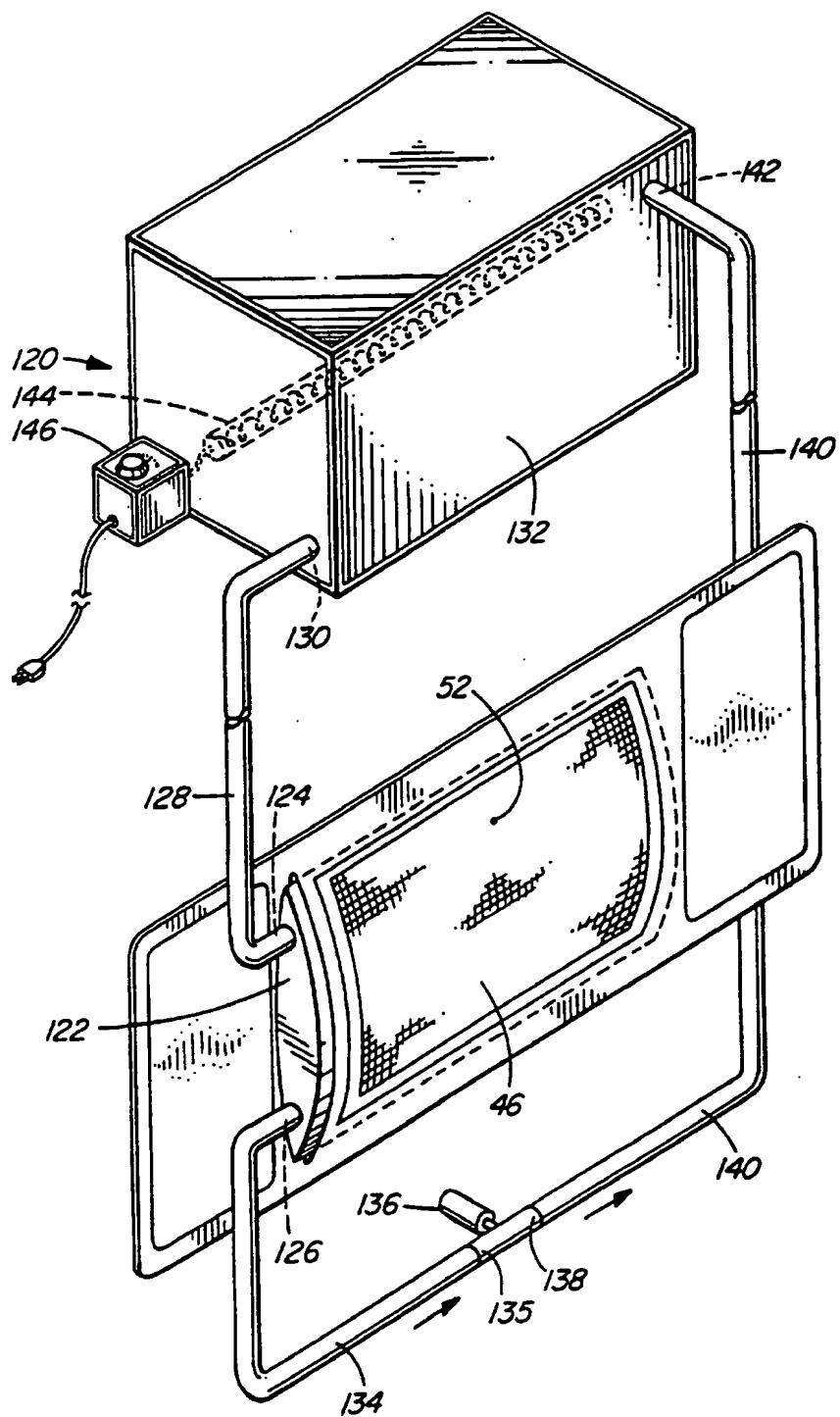


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FIG. I



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FIG. 4

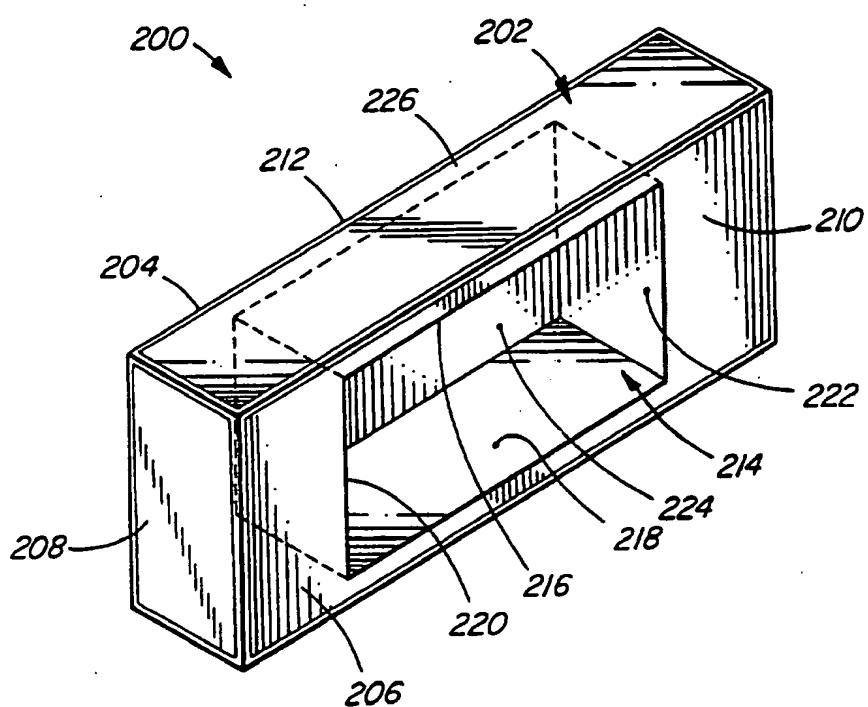


FIG. 5

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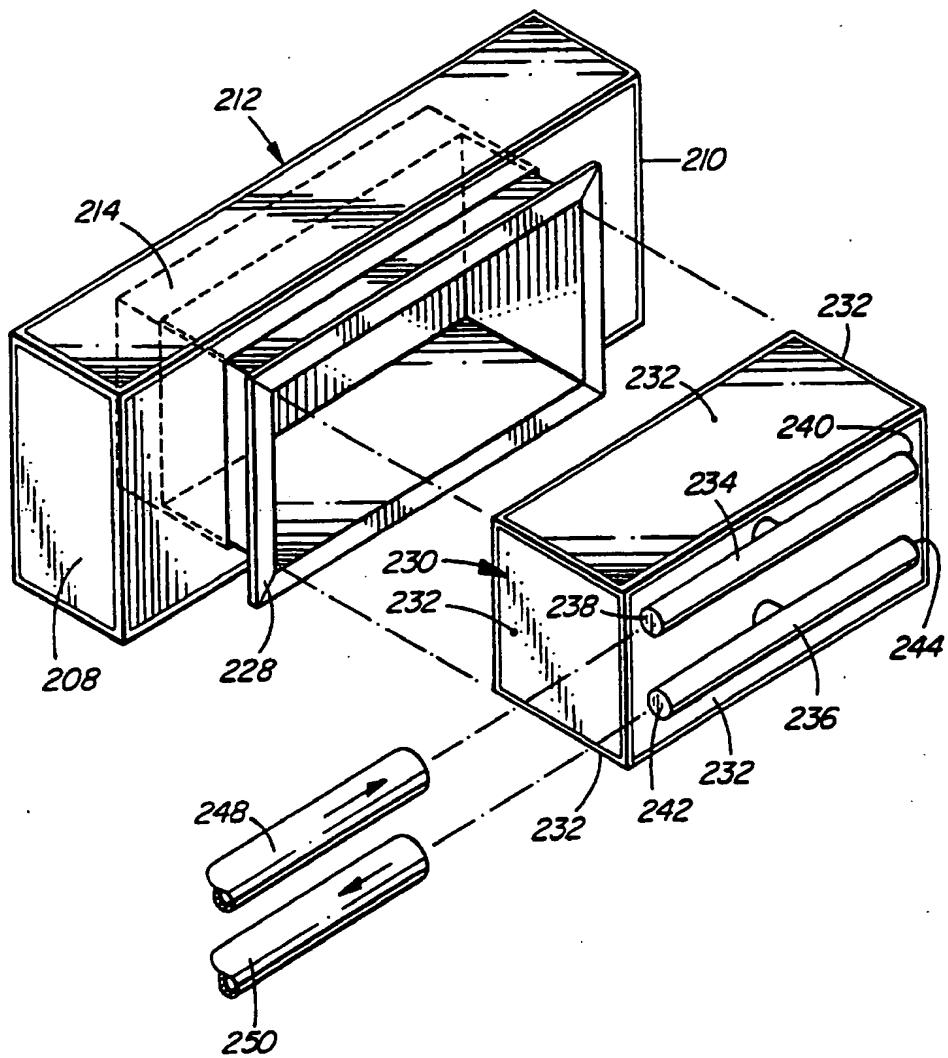


FIG. 6

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